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ABSTRACT

This is the first report arising from a large-scale research project on the development of skills in English in the primary schools of Sydney, Australia. Specifically, it reports on a study of the extent of the relationship among the four communication skills (reading, writing, listening, and speaking) in a sample of 314 children and on a longitudinal study of the developing pattern of relationships among the skills as those children proceeded through primary school. The report provides information on the sample and the measures of communication skills used in the study, the rating procedure for the student compositions and talks, the results, and the implications of the study. (FI)

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RELATIONSHIPS AMONG THE FOUR COMMUNICATION SKILLS DURING THE PRIMARY SCHOOL YEARS.

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April 1979

This is the first report arising out of a large-scale research project on the development of skills in English in the primary school. The author wishes to acknowledge the support of the Australian Research Grants Committee and the University of Sydney, and to express his appreciation of the assistance given by the research assistants to the project, and in particular Mrs. Mary C. Johnston. He is especially indebted to the principals and teachers of the seventeen Sydney schools involved in the project, and most of all to the children who provided an immense amount of data on their skills in English over a period of four years.

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RELATIONSHIPS AMONG THE FOUR COMMUNICATION SKILLS

DURING THE PRIMARY SCHOOL YEARS

What is the extent of the relationship in the performance of primary school children in "the four communication skills" of reading, writing, listening and speaking? Do children who perform well in reading comprehension tasks also tend to be among the better performers in listening comprehension, and in expressing themselves orally and in writing?

It is often assumed that these four skills are interrelated. Perren (1968), for example, states that "while there may be four such aspects of the use of language, the skills involved overlap, are often integrated and are certainly not specific to any one aspect". With some exceptions (e.g. Language Arts Curriculum Guide for Primary Schools in Queensland, 1974) curriculum statements of Education Departments/Boards in Australia tend to avoid making any pronouncement on relationships among skills, or to be inexplicit when they do so.

Relevant empirical evidence has been generally limited to relationships among specified pairs of the four skills (e.g. Spearritt 1962; Wilkinson 1965; Schools Council 1966; Clark 1973; Wilkinson et al. 1974; Novick and Waters 1977). In his longitudinal study of 338 children commencing kindergarten classes in California in 1952, Loban (1963) included measures of oral language as well as reading and writing, but his oral language measures were based on teachers' ratings of selected language factors rather than on direct measures of speaking ability.

This paper consists of a report of a research study which was designed to establish, among other things, the extent of the relationship among all four communication skills on the same sample of children, and the developing pattern of relationships among the skills as the children proceeded through the primary school. Since children begin to acquire listening and speaking skills before schooling commences, and reading and writing skills mostly after the commencement of schooling, relationships among the skills might be expected to be relatively weak in the early years of primary schooling. As they become more proficient in decoding and interpreting printed word symbols, their level of performance in the four communication skills might be expected to become more uniform, reflecting their general facility in handling language. In the context of this general hypothesis, this study set out to answer these specific questions:

(1) Can the four communication skills of reading, writing, listening and speaking be empirically identified as separate skills or are they merely different manifestations of a child's general level of language performance?

(2) To what extent are the four communication skills of reading, writing, listening and speaking, related among children in Grade 3 in primary school?

(3) How do relationships among the four communication skills develop as children move through the primary school from Grade 3 to Grade 6?

(4) Does the pattern of relationships among the four skills develop differently for boys and girls from independent schools, from government schools in middle class areas, and from government schools in lower class areas?

THE SAMPLE

The study was designed to provide data on a longitudinal basis on approximately 300 children (150 boys, 150 girls) in government schools in middle class areas of Sydney, 300 in government schools in lower class areas and 300 in independent schools. Of approximately 1100 children tested in Grade 3 in 1971, complete or almost complete results on all 110 tests, 12 written compositions and 8 tape recordings of talks applied or obtained over the four year period as the children proceeded through to Grade 6 were available for the 314 cases used in the present analysis. These comprise 73 boys and 59 girls from independent schools, 56 boys and 44 girls from government schools in middle class areas and 48 boys and 34 girls from government schools in lower class areas.

MEASURES OF COMMUNICATION SKILLS

1. Reading Comprehension

Reading skill was measured by means of standard forms of reading comprehension test. Form X of the N.S.W. Basic Skills Reading Test was applied in Grades 3 and 5, and Form Y (a parallel form) in Grades 4 and 6. These tests consist of a range of passages on various topics and an occasional poem, each followed by a number of multiple-choice questions. Two scores were obtained from each test. A score on Reading for Literal Meaning was derived from questions requiring a literal interpretation of information presented in a set of passages, while questions requiring children to interpret and think beyond the actual information presented in the passage yielded a score on Reading for Implied Meaning, based on a different set of passages. A further measure of reading comprehension was obtained from a Cloze test.

2. Listening Comprehension

The two measures of listening comprehension were dervied from Forms X (applied in Grades 3 and 5) and Y (applied in Grades 4 and 6) of the N.S.W. Basic Skills Listening Test. For each child a score was obtained for Receptive Listening based on the child's responses to multiple-choice questions requiring the recall of factual material from a set of passages. Similarly, a score was obtained for Reflective Listening, determined by the child's responses to multiple-choice questions requiring the listener to draw conclusions or make inferences from a second set of passages.

In the listening comprehension tests, children listened to each passage as it was read out by the tester; the passage was not printed in their answer booklets. They then listened to each question on the passage as it was read aloud by the tester together with the four possible answers, at the same time reading silently the options on their printed booklet. The options were made available in printed form to reduce memory load.

3. Written Composition

A broad indication of a child's skill in writing was required for the study. Since such a skill might show some variation according to the type of composition set, (Braddock et al. 1963; Gosling 1966) three types of composition, viz. descriptive, discussion (argumentative) and imaginative — narrative, reflecting common classifications of types of writing at the time the study was commenced, were selected to provide an overall picture of a child's skill in writing.

Written composition topics were chosen with the following criteria in mind:

(1) Was the topic likely to appeal to children?

(2) Was the relevant background information and experience common to all the children from the different types of school, so that no group would have any apparent advantage, and so that even the poorest writers would have something to write about?

To help ensure that children would all write on the same topic, the topics were presented to them in the form of explanatory paragraphs, as for example in the descriptive composition for Grade 6:

> Imagine that there has been a very bad storm in Sydney which has done a lot of damage. As soon as the storm is over and the wind has died down, you go for a walk in your suburb or in the streets near where you live. Describe what you see in as interesting a way as you can. If you would like to have a title for the composition, you could call it 'After the Storm'. Your composition should be about one and a half pages altogether.

The composition topics are listed below by short title.

	Type of composition		
Grade	Descriptive	Discussion	Imaginative-Narrative
Grade 3	Directions home.	A day's holiday.	I am a dog/cat.
Grade 4	A Sydney bridge.	Pictures or beach.	Trapped on a cliff.
Grade 5	At the scene of the fire.	Time of going to bed.	The missing aeroplane.
Grade 6	After the storm.	A shorter lunch-hour.	An exciting weekend.

The compositions were written at weekly intervals under the supervision of, but without guidance from the class teacher.

4. Spoken Enqlish

A review of Hitchman's (1964) writings and of the Schools Council project (1966) suggested that the delivery of a prepared talk was an appropriate method for testing spoken English. The disadvantage of this method for the present study was that primary school children in particular might have received prior assistance and/or learned a talk by heart. Moreover, it was considered that a child's ability to speak effectively and coherently could be more directly tapped by an impromptu talk with a few minutes for preparation than by a prepared talk.

Speaking ability was therefore defined in terms of the child's proficiency in giving short impromptu talks, after a two-minute period for preparation. Audiences of four or five children were provided at the Grade 3 level, but the talks were given by each child in the presence of the research assistant only at Grade 4 and above. Children were drawn from classes in random order to give their talks, and a week's interval was allowed between the first and second talk. Tape recordings provided a permanent record of the talks for rating purposes.

Topics for the talks were selected according to the criteria listed earlier for written composition topics. They were introduced by a preamble in an attempt to ensure that the children spoke basically on the same topic. Talks were terminated after 1½ minutes in Grades 3 and 4, and after 2 minutes in Grades 5 and 6 unless the child was still talking fluently at that stage.

The type of topic is illustrated by the discussion talk for Grade 4:

> "Some people say that summer is the best time of the year, but others think winter is the best time. We would like you to tell us on the tape recorder what you think about the summer and winter seasons. If you like one season better than the other, say why you do."

The full list of topics is indicated by short title below.

	Type of talk	
Grade	Descriptive-expository	Discussion
Grade 3	Games.	Saturdays and Sundays.
Grade 4	Houses in Australia.	Summer or Winter.
Grade 5	Job preference.	Pocket money.
Grade 6	Australian Saturdays.	Longer School Holidays.

RATING OF COMPOSITIONS AND TALKS

Compositions and talks were rated by standard multiple marking procedures, each script or recording being rated independently by two qualified markers, the final raw

score being the sum of their ratings. The rating of the compositions and talks for the full sample was preceded each year by a training session in which preliminary samples of 30 to 60 scripts or recordings were rated with the aid of marking guides and printed sets of sample compositions representing the nine points of the normalized marking scale. Ratings were based on the marker's general impression of the script or recording. Although some account was taken of mechanical errors in writing, emphasis was placed in the marking of compositions on the child's ability to write coherently and effectively, and interestingly and imaginatively when required. Likewise, talks were to be judged in terms of the effectiveness of the communication as a unitary whole, though taking account of both the content of the talk and such aspects as fluency and complexity of sentence structure. Mark-remark reliability coefficients for the sum of the scores of the two raters after a 5 to 10 day interval was above .90 for all 12 written compositions in Grades 3 to 6, and above .80 for six of the eight talks, falling to .78 and .72 for the remaining two talks.

RESULTS

Factor analyses using both principal factor and maximum likelihood solutions with oblique rotations were carried out on the matrices of intercorrelations of the normalized scores on the ten measures of communication skills at each of Grades 3, 4, 5 and 6 for the following sub-samples:

1. Combined boys (N = 177)
2. Combined girls (N = 137)
3. Government school boys in lower class areas (N = 48)
4. Government school girls in lower class areas (N = 34)
5. Government school boys in middle class areas (N = 56)
6. Government school girls in middle class areas (N = 44)
7. Independent school boys (N = 73)
8. Independent school girls (N = 59)

Factors and factor coefficients obtained for the combined boys' and combined girls' samples are set out in condensed form in Table 1. Factor coefficients below .30 are taken to be non-significant.

Table 1. Factors and factor coefficients defined by direct oblimin solutions (delta=0) of principal factor matrices for boys and for girls in Sample 3456 in Sydney Longitudinal Study.
(Decimal points omitted for factor coefficients)

	All Boys (N=177)				All Girls (N=137)			
	Grade 3	Grade 4	Grade 5	Grade 6	Grade 3	Grade 4	Grade 5	Grade 6
Year	1971	1972	1973	1974	1971	1972	1973	1974
Test / Factor	I(RL)	I(R)	I(RL)	I(RL)	I(R)	I(R)	I(R)	I(PL)
Rdg Lit Mng	46	69	81	81	81	64	63	69
Rdg Imp Mng	53	84	70	73	71	83	81	49
Cloze Rdg		37	38	68	45	41	53	
Ref Listng		*39*						
Factor		II(L)			II(L)	II(L)	II(L)	
Rec Listng	63	63	61	43	92	53	74	67
Ref Listng	63	56	67	77	67	92	71	66
Factor	II(W)	III(W)	II(W)	II(W)	III(W)	III(W)	III(W)	II(W)
Compos Desc	77	82	74	93	68	82	79	76
Compos Disc	74	76	71	73	57	84	73	81
Compos Imag	84	80	91	67	85	80	71	67
Cloze Rdg	*51*	*38*	*38*					*51*
Rdg Lit Mng	*38*							
Rdg Imp Mng	*32*							
Factor	III(S)	IV(S)	III(S)	III(S)	IV(S)	IV(S)	IV(S)	III(S)
Talk Desc	41	67	84	79	92	70	82	73
Talk Disc	92	78	66	78	58	94	80	92

Interpretation of table taking first data column as an example:
The factor solution for all boys for Grade 3 yielded 3 separate though correlated factors. Only the tests of Reading for Literal Meaning, Reading for Implied Meaning, Receptive Listening and Reflective Listening had significant coefficients on Factor I, which has therefore been labelled RL, measuring comprehension in Reading or Listening form. Factor II is labelled W for Writing, since the tests with high coefficients which define the factor are the three Composition tests. The coefficients for the three italicized tests on this factor are anomalous, but are considerably lower than those for the Composition tests. Only the two talks are represented by significant coefficients on Factor III, which is therefore labelled S, representing Speaking ability.

The results will be presented and interpreted in terms of the specific questions posed in the first part of this paper.

Question 1

"Can the four communication skills of reading, writing, listening and speaking be empirically identified as separate skills or are they merely different manifestations of a child's general level of language performance?"

Table 1 shows that writing and speaking are empirically distinguishable skills at Grades 3, 4, 5 and 6 for both boys and girls. Reading and listening are also distinguishable skills for girls from Grade 3 to Grade 5, but merge into a broader skill at Grade 6. For boys, reading and listening tests tend

to define a broader receptive communication skill rather than separate factors. The four skills are thus not merely different manifestations of a child's general level of language performance. Nor do the results provide empirical support for the literacy skills (reading and writing) vs oracy skills (listening and speaking) dichotomy. There is no support for an expressive skill category incorporating both writing and speaking, but there appears to be some support for a receptive communication skill embracing reading and listening. Even in this respect, however, the evidence is not definitive, as separate analyses for the 232 Sydney boys who were present for all tests in Grades 3, 4 and 5 and for the 244 boys who were present for all tests in Grades 4, 5 and 6 suggested that reading and listening are identifiable as separate skills at Grade 3 and Grade 4 at least.

Question 2

"To what extent are the four communication skills of reading, writing, listening and speaking related among children in Grade 3 in primary school?"

This question can be answered in terms of the correlations among the communication skill factors for Grade 3 children. These are presented for boys and girls in Table 2 which also describes the strength of the relationships among the skills.

Table 2. Relationships among factors for Grade 3 children in Sample 3456. (177 boys, 137 girls)

	Listening	Writing	Speaking
Reading	Strong relationship (Boys: same factor) (Girls: r=+.58)	Moderate relationship (Boys: r=+.48) (Girls: r=+.45)	Weak relationship (Boys: r=+.32) (Girls: r=+.22)
Listening		Moderate relationship (Boys: r=+.48) (Girls: r=+.54)	Weak relationship (Boys: r=+.32) (Girls: r=+.29)
Writing			Weak to moderate relationship (Boys: r=+.34) (Girls: r=+.45)

In general, reading and listening tend to be strongly related at Grade 3, writing tends to show a moderate relationship with reading and listening, and these three skills are only weakly related to speaking ability.

Question 3

"How do the relationships among the four communication skills develop as children move through the primary school from Grade 3 to Grade 6?"

The factor solutions in Table 1 show that the four communication skills are distinguishable as separate factors at Grade 3 and continue to be distinguishable through to Grade 6, except for the merging of reading and listening skills among boys and at Grade 6 among girls. From this point of view, there is little change in the relationships among the skills from Grade 3 through to Grade 6. Other evidence is available, however, from the correlations among the factors for the children when they were in Grade 3, Grade 4, Grade 5 and Grade 6. These are presented in Table 3.

Table 3. Relationships among factors for children in Grades 3, 4, 5 and 6 in Sample 3456. (177 boys, 137 girls)

	Listening	Writing	Speaking
Reading	Initial strong relationship becomes stronger (Boys: same factor) (Girls: r=.58(3) .61(4) .70(5) merge (6))	Initial moderate relationship becomes strong (Boys: r=.48(3) .55(4) .72(5).73(6)) (Girls: r=.45(3) .57(4).71(5).72(6))	Initial weak relationship becomes moderate (Boys: r=.32(3) .40(4).45(5).51(6)) (Girls: r=.22(3) .22(4).42(5).39(6))
Listening		Initial moderate relationship becomes strong (Boys: r=.48(3) .55(4).72(5).73(6)) (Girls: r=.54(3) .57(4).64(5).72(6))	Initial weak relationship becomes moderate (Boys: r=.32(3) .40(4).45(5).51(6)) (Girls: r=.29(3) .31(4).27(5).39(6))
Writing			Ititial weak to moderate relationship becomes moderate (Boys: r=.34(3) .38(4).49(5).64(6)) (Girls: r=.45(3) .40(4).54(5).52(6))

Thus although the four communication skills tend to remain distinguishable throughout the period of primary schooling, the changing patterns of correlations among the factors signify an increasing integration of language performance. Writing moves from a moderate to a strong relationship with reading and listening, and speaking moves from a weak to a moderate relationship with the other three skills.

Question 4

"Does the pattern of relationships among the four skills develop differently for boys and girls from independent schools, from government schools in middle class areas, and from government schools in lower class areas?"

Answers to this question can only be tentative, because of the small numbers of cases available for analysis within the six sub-samples. The trends suggest, however, that

the pattern of relationships among the four skills does develop differently for the different groups. They are summarized below:

(a) Independent schools.

(i) The four skills tend to be distinguishable from Grades 3 to 5; at Grade 6, reading and listening merge into a receptive communication skill for girls, and all four skills merge into a general language skill for boys.

(ii) Factor correlations show signs of increasing integration of the skills as children move from Grade 3 to Grade 6.

(b) Government school girls in middle and lower class areas.

(i) From Grade 3 through to Grade 6, reading and listening are not distinguishable skills but are incorporated into a receptive communication skill. Writing and speaking become distinguishable skills from Grades 4 to 6, after having been indistinguishable at Grade 3.

(ii) Factor correlations show little change in the low to moderate relationships among the skills as children move through to Grade 6.

(c) Government school boys in middle class areas.

(i) The four skills are distinguishable at Grade 3, but Reading and Listening merge thereafter into a receptive communication skill.

(ii) Factor correlations show increasing integration of reading, listening and writing, but not between these skills and speaking.

(d) Government school boys in lower class areas.

(i) This is the only group in which there is a division of skills along the literacy (reading, writing) vs oracy (listening, speaking) dimension. The division is maintained through Grades 3 and 4, but weakens at Grade 5 when listening and speaking become separately distinguishable.

(ii) Factor correlations show little change in the low to moderate relationships among the skills from Grade 3 through to Grade 6.

IMPLICATIONS

Implications of the study for the teaching and testing of English rest upon the validity and acceptability of the criterion measures of reading, writing, listening and speaking. Standard measures were employed for the first three of these skills; if the composition topics appear stereotyped, this was due to the need for choosing topics which would not disadvantage particular groups. Weak relationships between speaking ability and the other three skills may be partly due to the form in

which spoken English was assessed, yet proficiency in this particular criterion measure might be regarded as a highly legitimate and desirable objective of primary school work in spoken English.

It is in the area of assessment of language that the study has its most direct implications. The fact that the four communication skills can be identified as separate skills from Grade 3 to Grade 6, with signs of merging occurring only between reading and listening comprehension, indicates that measures of each of the skills should be included in any overall assessment of language performance, provided of course, that proficiency in each of the skills is regarded as an important educational objective. Unless all four skills are measured, some aspects of children's language performance will be overlooked.

Implications of the study for the teaching of language are less straightforward. The fact that the four skills can be identified as measuring different aspects of language in terms of actual outcomes does not necessarily mean that they should be treated as separate skills for teaching purposes; the same outcomes could occur in an integrated curriculum in which differences among the skills were deliberately played down. It is probable, however, that if some aspects of the language curriculum are relatively neglected, children will fail to realise their full potential in language. Differences in the patterns of relationships of the communication skills among children from different social class backgrounds suggest that integrated language programmes might call for rather different emphases among the four skills in different types of school.

The research implications of the study are probably the most fascinating of all. Why are the relationships among the communication skills as low as they are? Should not they be higher, if facility in handling language is a general characteristic of a person? Why, in particular, is speaking ability so weakly related to performance in reading, writing and listening? Is this a reflection of Australian school curricula or teaching methods or patterns of control in Australian homes? Would the relationships be different in countries such as the U.S.A. in which schools have traditionally devoted more attention to oral language?

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